

## **AMENDMENTS TO THE CLAIMS**

This listing of the claims will replace all prior versions, and listings, of claims in the application.

### **Listing of Claims:**

1. (Currently Amended) A system for detecting the growth of microorganisms in a sample in a container by monitoring the concentration of a gas related to microorganism metabolism in [at least one] said container, comprising:
  - a laser chosen [an energy emitting device, adapted] to emit an energy signal toward said container, said energy signal having substantially a single wavelength that is substantially equal to a wavelength at which said gas absorbs said energy signal;
  - a detector, [adapted] chosen to detect a portion of said energy signal that passes through said container; and
  - a signal analyzer, [adapted] chosen to analyze said detected portion of said energy signal to determine whether said gas exists in said container, and wherein said container is able to optically transmit the energy signal from the laser to the detector.
2. (Currently Amended) A system as claimed in claim 1, wherein:
  - said gas [includes] is oxygen; and
  - said [energy emitting device] laser is [adapted] chosen to emit said energy signal at said wavelength at which oxygen absorbs said energy signal.
3. (Currently Amended) A system as claimed in claim 1, wherein:
  - said gas includes carbon dioxide; and
  - said [energy emitting device] laser is [adapted] chosen to emit said energy signal at said wavelength at which carbon dioxide absorbs said energy signal.
4. (Original) A system as claimed in claim 1, wherein:
  - said signal analyzer is adapted to analyze said detected portion of said energy signal to determine whether any of said energy signal being emitted toward said container was absorbed by said gas.
5. (Original) A system as claimed in claim 1, wherein:
  - said signal analyzer is adapted to analyze said detected portion of said energy signal to detect a change in pressure in said container to determine, based on said change in pressure, whether said gas exists in said container.

6. (Original) A system as claimed in claim 1, further comprising:  
an organism detector which is adapted, based on a result provided by said signal analyzer, to determine whether an organism which consumes or emits said gas is present in said container.
7. (Currently Amended) A system as claimed in claim 1, wherein:  
said gas includes one of NH<sub>3</sub>, H<sub>2</sub>S, or CH<sub>4</sub> [or;] and  
said [energy emitting device] laser is [adapted] chosen to emit said energy signal at said wavelength at which said one of NH<sub>3</sub>, H<sub>2</sub>S, or CH<sub>4</sub> [or SO<sub>2</sub>] absorbs said energy signal.
8. (Currently Amended) A system as claimed in claim 1, wherein:  
said [energy emitting device] includes a) laser [which] is [adapted] chosen to emit laser light as said energy signal.
9. (Currently Amended) A system as claimed in claim 1, wherein:  
said [energy emitting device] laser emits said energy signal as infrared light.
10. (Original) A system as claimed in claim 1, wherein:  
said signal analyzer includes a spectrography device, adapted to spectrographically analyze said detected portion of said energy signal.
11. (Currently Amended) A system for detecting the growth of microorganisms in a sample in a container by monitoring pressure related to microorganism metabolism in [at least one] said container, comprising:  
a laser chosen [an energy emitting device, adapted] to emit an energy signal toward said container, said energy signal having a substantially single wavelength that is substantially equal to a wavelength at which a gas in said container absorbs said energy signal;  
a detector, [adapted] chosen to detect a portion of said energy signal that passes through said container; and  
a signal analyzer, [adapted] chosen to analyze said detected portion of said energy signal to determine a pressure in said container, and wherein said container is able to optically transmit the energy signal from the laser to the detector.
12. (Currently Amended) A system as claimed in claim 11, wherein;  
said gas [includes] is oxygen; and  
said [energy emitting device] laser is [adapted] chosen to emit said energy signal at said wavelength at which oxygen absorbs said energy signal.
13. (Currently Amended) A system as claimed in claim 11, wherein:  
said gas [included] is carbon dioxide; and

- said [energy emitting device] laser is [adapted] chosen to emit said energy signal at said wavelength at which carbon dioxide absorbs said energy signal.
14. (Currently Amended) A system as claimed in claim 11, wherein:  
said gas includes one of  $\text{NH}_3$ ,  $\text{H}_2\text{S}$ , or  $\text{CH}_4$  [or  $\text{SO}_2$ ]; and  
said [energy emitting device] is [adapted] chosen to emit said energy signal at said wavelength at which said one of  $\text{NH}_3$ ,  $\text{H}_2\text{S}$ , or  $\text{CH}_4$  [or  $\text{SO}_2$ ] absorbs said energy signal.
15. (Original) A system as claimed in claim 11, wherein:  
said signal analyzer is adapted to analyze said detected portion of said energy signal to determine whether any of said energy signal being emitted toward said container was absorbed by said gas.
16. (Original) A system as claimed in claim 11, further comprising:  
an organism detector which is adapted, based on a result provided by said signal analyzer, to determine whether an organism which consumes or emits said gas is present in said container.
17. (Currently Amended) A system claimed in claim 11, wherein:  
said [energy emitting device includes a] laser [which] is [adapted] chosen to emit laser light as said energy signal.
18. (Currently Amended) A system as claimed in claim 11, wherein:  
said [energy emitting device] laser emits said energy signal as infrared light.
19. (Original) A system as claimed in claim 11, wherein:  
said signal analyzer includes a spectrography device, adapted to spectrographically analyze said detected portion of said energy signal.
20. (Currently Amended) A method for detecting the growth of microorganisms in a sample in a container by monitoring the concentration of a gas related to microorganism metabolism in [at least one] said container, comprising the steps of:  
emitting an energy signal from a laser toward said container, said energy signal having a substantially single wavelength that is substantially equal to a wavelength at which said gas absorbs said energy signal;  
detecting a portion of said energy signal that passes through said container;  
and  
analyzing said detected portion of said energy signal to determine whether said gas exists in said container, and wherein said container is able to optically transmit the energy signal from the laser to the detector.
21. (Currently Amended) A method as claimed in claim 20, wherein:  
said gas [includes] is oxygen; and

- said emitting step emits said energy signal at said wavelength at which oxygen absorbs said energy signal.
22. (Currently Amended) A method as claimed in claim 20, wherein:  
said gas [includes] is carbon dioxide; and  
said emitting step emits said energy signal at said wavelength at which carbon dioxide absorbs said energy signal.
23. (Currently Amended) A method as claimed in claim 20, wherein:  
said gas includes one of  $\text{NH}_3$ ,  $\text{H}_2\text{S}$ , or  $\text{CH}_4$  [or  $\text{SO}_2$ ]; and  
said laser [energy emitting device] is [adapted] chosen to emit said energy signal at said wavelength at which said one of  $\text{NH}_3$ ,  $\text{H}_2\text{S}$ , or  $\text{CH}_4$  [ $\text{SO}_2$ ] absorbs said energy signal.
24. (Original) A method as claimed in claim 20, wherein:  
said analyzing step analyzes said detected portion of said energy signal to determine whether any of said energy signal being emitted toward said container was absorbed by said gas.
25. (Original) A method as claimed in claim 20, wherein:  
said analyzing step analyzes said detected portion of said energy signal to detect a change in pressure in said container to determine, based on said change in pressure, whether said gas exists in said container.
26. (Original) A method as claimed in claim 20, further comprising the step of:  
determining, based on a result provided by said analyzing step, whether an organism which consumes or emits said gas is present in said container.
27. (Original) A method as claimed in claim 20, wherein:  
said energy emitting step emits laser light as said energy signal.
28. (Original) A method as claimed in claim 20, wherein:  
said energy emitting step emits said energy as infrared light.
29. (Original) A method as claimed in claim 20, wherein:  
said analyzing step spectrographically analyzes said detected portion of said energy signal.
30. (Currently Amended) A method for detecting the growth of microorganisms in a sample in a container by monitoring pressure related to microorganism metabolism in [at least one] said container, comprising the steps of:  
emitting an energy signal from a laser toward said container, said energy signal having a substantially single wavelength that is substantially equal to a wavelength at which a gas in said container absorbs said energy signal;  
detecting a portion of said energy signal that passes through said container;  
and

analyzing said detected portion of said energy signal to determine a pressure in said container, and wherein said container is able to optically transmit the energy signal from the laser to the detector.

31. (Currently Amended) A method as claimed in claim 30, wherein:  
said gas [includes] is oxygen; and  
said energy emitting step emits said energy signal at said wavelength at which oxygen absorbs said energy signal.
32. (Currently Amended) A method as claimed in claim 30, wherein:  
said gas [includes] is carbon dioxide; and  
said energy emitting step emits said energy signal at said wavelength at which carbon dioxide absorbs said energy signal.
33. (Currently Amended) A system as claimed in claim 30, wherein:  
said gas includes one of NH<sub>3</sub>, H<sub>2</sub>S, or CH<sub>4</sub> [or SO<sub>2</sub>]; and  
said energy emitting device is adapted to emit said energy signal at said wavelength at which said one of NH<sub>3</sub>, H<sub>2</sub>S, or CH<sub>4</sub> [or SO<sub>2</sub>] absorbs said energy signal.
34. (Original) A method as claimed in claim 30, wherein:  
said signal analyzing step analyzes said detected portion of said energy signal to determine whether any of said energy signal being emitted toward said container was absorbed by said gas.
35. (Original) A method as claimed in claim 30, further comprising the step of:  
determining, based on a result provided by said signal analyzer, whether an organism which consumes or emits said gas is present in said container.
36. (Original) A method as claimed in claim 30, wherein:  
said energy emitting step emits laser light as said energy signal.
37. (Original) A method as claimed in claim 30, wherein:  
said energy emitting step emits said energy signal as infrared light.
38. (Original) A method as claimed in claim 30, wherein:  
said signal analyzing step spectrographically analyzes said detected portion of said energy signal.
39. (Currently Amended) A system as claimed in claim 1, further comprising:  
a housing, adapted to house said [energy emitting device] laser and said detector, said housing being movable to position said [energy emitting device] laser and said detector proximate to each of said containers at different moments in time so that said [energy emitting device] laser is adapted to emit a respective said energy signal toward each said container

and said detector is adapted to detect a portion of each said respective energy signal that passes through each said respective container; and said signal analyzer is adapted to analyze each said detected portion of said each respective energy signal to determine whether said gas exists in each said respective container.

40. (Original) A system as claimed in claim 39, wherein:

said containers are arranged in a plurality of rows and columns; and said housing is adapted to move along said rows and columns of said containers.

41. (Currently Amended) A system as claimed in claim 39, wherein:

said housing is adapted to extend said [energy emitting device] laser and said detector toward any said container and to retract said [energy emitting device] laser and said detector away from said any container.

42. (Currently Amended) A system as claimed in claim 11, further comprising:

a housing, adapted to house said [energy emitting device] laser and said detector, said housing being movable to position said [energy emitting device] laser and said detector proximate to each of said containers at different moments in time so that said [energy emitting device] laser is adapted to detect a portion of each said respective energy signal that passes through each said respective container; and said signal analyzer is adapted to analyze each said detected portion of said each respective energy signal to determine a respective pressure in each said respective container.

43. (Original) A system as claimed in claim 42, wherein:

said containers are arranged in a plurality of rows and columns; and said housing is adapted to move along said rows and columns of said containers.

44. (Currently Amended) A system as claimed in claim 42, wherein:

said housing is adapted to extend said [energy emitting device] laser and said detector toward any said container and to retract said [energy emitting device] laser and said detector away from said any container.

45. (Currently Amended) A method as claimed in claim 20, further comprising:

employing said laser [an energy emitting device], adapted to emit said energy signal, and a detector, adapted to detect said portion of said energy signal, in a housing;

moving said housing to position said [energy emitting device] laser and said detector proximate to each of said containers at different moments in time so

that said [energy emitting device] laser is adapted to emit a respective said energy signal toward each said container and said detector is adapted to detect a portion of each said respective energy signal that passes through each said respective container; and

wherein said analyzing step analyzes each said detected portion of said each respective energy signal to determine whether said gas exists in each said respective container.

46. (Original) A method as claimed in claim 45, wherein:

said containers are arranged in a plurality of rows and columns; and  
said moving step moves said housing along said rows and columns of said containers.

47. (Currently Amended) A method as claimed in claim 45, further comprising:

extending said [energy emitting device] laser and said detector toward any said container; and

retracting said [energy emitting device] laser and said detector away from said any container.

48. (Currently Amended) A method as claimed in claim 30, further comprising:

employing a laser [an energy emitting device] , adapted to emit said energy signal, and a detector, adapted to detect said portion of said energy signal, in a housing;

moving said housing to position said [energy emitting device] laser and said detector proximate to each of said containers at different moments in time so that said energy emitting device is adapted to emit a respective said energy signal toward each said container and said detector is adapted to detect a portion of each said respective energy signal that passes through each said respective container; and

wherein said analyzing step analyzes each said detected portion of said each respective energy signal to determine said respective pressure in each said respective container.

49. (Original) A method as claimed in claim 48, wherein:

said containers are arranged in a plurality of rows and columns; and  
said moving step moves said housing along said rows and columns of said containers.

50. (Currently Amended) A method as claimed in claim 48, further comprising:

extending said [energy emitting device] laser and said detector toward any said container; and

retracting said [energy emitting device] laser and said detector away from said any container.

51. (Currently Amended) A system as claimed in claim 1, further comprising:  
a housing having openings therein, each opening being adapted to receive a respective one of said containers, said housing being movable to position each of said containers proximate to said [energy emitting device] laser and said detector at different moments in time so that said [energy emitting device] laser is adapted to emit a respective said energy signal toward each said container and said detector is adapted to detect a portion of each said respective energy signal that passes through each said respective container;  
and

said signal analyzer is adapted to analyze each said detected portion of said each respective energy signal to determine whether said gas exists in each said respective container.

52. (Original) A system as claimed in claim 51, wherein:

said housing is substantially circular, and said openings are disposed circumferentially about said housing; and

said housing is adapted to rotate to move said containers proximate to said energy emitting device and said detector.

53. (Currently Amended) A system as claimed in claim 11, further comprising:  
a housing having openings therein, each opening being adapted to receive a respective one of said containers, said housing being movable to position each of said containers proximate to said [energy emitting device] laser and said detector at different moments in time so that said [energy emitting device] laser is adapted to emit a respective said energy signal toward each said container and said detector is adapted to detect a portion of each said respective energy signal that passes through each said respective container;  
and

said signal analyzer is adapted to analyze each said detected portion of said each respective energy signal to determine whether said gas exists in each said respective container.

54. (Currently Amended) A system as claimed in claim 53, wherein:

said housing is substantially circular, and said openings are disposed circumferentially about said housing; and

said housing is adapted to rotate to move said containers proximate to said [energy emitting device] laser and said detector.

55. (Currently Amended) A method as claimed in claim 20, further comprising:



placing said containers in a housing having openings therein, each opening being adapted to receive a respective one of said containers; and  
moving said housing to position each of said containers proximate to said [energy emitting device] laser and said detector at different moments in time so that said [energy emitting device] laser is adapted to emit a respective said energy signal toward each said container and said detector is adapted to detect a portion of each said respective energy signal that passes through each said respective container; and  
wherein said analyzing step analyzes each said detected portion of said each respective energy signal to determine whether said gas exists in each said respective container.

56. (Original) A method as claimed in claim 55, wherein:

said housing is substantially circular, and said openings are disposed circumferentially about said housing; and  
said moving step rotates said housing to move said containers proximate to said energy emitting device and said detector.

57. (Currently Amended) A method as claimed in claim 30, further comprising:  
placing said containers in a housing having openings therein, each opening being adapted to receive a respective one of said containers; and  
moving said housing to position each of said containers proximate to said [energy emitting device] laser and said detector at different moments in time so that said [energy emitting device] laser is adapted to emit a respective said energy signal toward each said container and said detector is adapted to detect a portion of each said respective energy signal that passes through each said respective container; and  
wherein said analyzing step analyzes each said detected portion of said each respective energy signal to determine whether said gas exists in each said respective container.

58. (Currently Amended) A method as claimed in claim 57, wherein:

said housing is substantially circular, and said openings are disposed circumferentially about said housing; and  
said moving step rotates said housing to move said containers proximate to said [energy emitting device] laser and said detector.

59. (New) A system as claimed in claim 1, wherein said laser is tunable with respect to wavelength emitted.

60. (New) A system as claimed in claim 11, wherein said laser is tunable with respect to wavelength emitted.

- 61.(New) A method as claimed in claim 20, wherein said laser is tunable with respect to wavelength emitted.
- 62.(New) A method as claimed in claim 30, wherein said laser is tunable with respect to wavelength emitted.